

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent No. : 7,811,673
Issue Date : October 12, 2010
Applicants/Patentees : Godo SAKAMOTO, et al.
Application No. : 10/582,624
Filed : June 12, 2006
For: : HIGH STRENGTH POLYETHYLENE FIBER
Confirmation No. : 2789
Group Art Unit : 1782
Examiner : Jill M. GRAY
Docket No. : 10404/21

Attn: Certificate of Corrections Branch

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

REQUEST FOR CERTIFICATE OF CORRECTION UNDER 37 C.F.R. §1.323

Sir:

Applicants request that the patent be corrected for an error made by the applicants as shown in the attached Certificate of Correction. The error is of a clerical nature, typographical nature or minor character, the correction of which would not constitute new matter and would not require reexamination.

Applicants also attach a marked-up copy of the U.S. patent cover page, showing the underlying International application filing date to be corrected from “Mar. 12, 2004” to “Dec. 3, 2001.” Applicant further attach a Bibliographic data sheet from the WIPO website, showing the correct International filing date for the underlying International application, PCT/JP2004/018004, to be “03.12.2004.”

The Commissioner is hereby authorized to charge payment of the 37 C.F.R. §1.20(a) Certificate of Correction fee of \$100.00 to the deposit account of Kenyon & Kenyon LLP, **Deposit Account No. 11-0600**. The Commissioner is also authorized to charge any additional fees or credit any overpayment in connection with this paper to Deposit Account No. 11-0600.

Respectfully submitted,
KENYON & KENYON LLP

Dated: November 11, 2010

By: /Qi Zhao/
Qi Zhao
Reg. No. 64,129

KENYON & KENYON LLP
1500 K Street, N.W., Suite 700
Washington, D.C. 20005
(202) 220-4200 (telephone)
(202) 220-4201 (fax)
Customer No. 23838

UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

Page 1 of 1

PATENT NO. : 7,811,673

APPLICATION NO.: 10/582,624

ISSUE DATE : October 12, 2010

INVENTOR(S) : Godo SAKAMOTO, et al.

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Page 1, column 1 under Item (22) PCT FILED, the International Filing Date of "Mar. 12, 2004" should be changed to --Dec. 3, 2004--.

MAILING ADDRESS OF SENDER (Please do not use customer number below):

KENYON AND KENYON
1500 K Street, N.W., Suite 700
Washington, D.C. 20005-1257

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.



US007811673B2

(12) **United States Patent**
Sakamoto et al.(10) **Patent No.:** **US 7,811,673 B2**(45) **Date of Patent:** **Oct. 12, 2010**(54) **HIGH STRENGTH POLYETHYLENE FIBER**(75) Inventors: **Godo Sakamoto**, Otsu (JP); **Tooru Kitagawa**, Otsu (JP); **Yasuo Ohta**, Otsu (JP); **Yasunori Fukushima**, Otsu (JP); **Hiroki Murase**, Otsu (JP)(73) Assignee: **Toyo Boseki Kabushiki Kaisha**, Osaka-Shi (JP)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 478 days.

(21) Appl. No.: **10/582,624**(22) PCT Filed: **Mar. 12, 2004** Dec. 3, 2004(86) PCT No.: **PCT/JP2004/018004**

§ 371 (c)(1),

(2), (4) Date: **Jun. 12, 2006**(87) PCT Pub. No.: **WO2005/056892**PCT Pub. Date: **Jun. 23, 2005**(65) **Prior Publication Data**

US 2007/0148452 A1 Jun. 28, 2007

(30) **Foreign Application Priority Data**

Dec. 12, 2003	(JP)	2003-414574
Jan. 9, 2004	(JP)	2004-003564
Mar. 26, 2004	(JP)	2004-092305
Jul. 8, 2004	(JP)	2004-201430

(51) **Int. Cl.**
D01F 6/00 (2006.01)(52) **U.S. Cl.** 428/634; 428/394(58) **Field of Classification Search** None
See application file for complete search history.(56) **References Cited****U.S. PATENT DOCUMENTS**

5,342,567	A	8/1994	Chen et al.	
6,605,348	B1	8/2003	Ohta et al.	
6,969,553	B1 *	11/2005	Tam et al.	428/364
7,078,097	B1 *	7/2006	Tam et al.	428/364
7,078,099	B1 *	7/2006	Tam et al.	428/394
7,081,297	B2 *	7/2006	Tam et al.	428/357
7,115,318	B2 *	10/2006	Tam et al.	428/357

FOREIGN PATENT DOCUMENTS

CA 1152272 8/1983

EP	1193335	A1	4/2002
JP	60-47922		10/1985
JP	64-8732		2/1989
JP	3-137215		6/1991
JP	7-3524		1/1995
JP	7-501859		2/1995
JP	11-350247	A	12/1999
JP	2000-265319	A	9/2000
JP	2001-73224		3/2001
JP	2001-303358	A	10/2001
JP	2003-64525	A *	3/2003
JP	2006342463	A *	12/2006
JP	2006342464	A *	12/2006
WO	WO 93/12276		6/1993
WO	WO 01/12885	A1	2/2001
WO	0173173		10/2001

OTHER PUBLICATIONS

JP2003-64525 machine translation, Mar. 2003.*

W.F. Wong, et al., "Analysis of the deformation of gel-spun polyethylene fibres using Raman spectroscopy," *Journal of Materials Science*, vol. 29, pp. 510-519, 1994.Robert S. Bretzlaff, et al., "Frequency Shifting and Asymmetry in Infrared Bands of Stressed Polymers," *Macromolecules*, vol. 16, pp. 1907-1917, 1983.E. Bright Wilson, Jr., et al., *Molecular Vibrations*, Ch. 4, pp. 54-76, Dover Publications, 1980.

Supplementary European Search Report from EP 04820163.6 dated Nov. 7, 2007.

* cited by examiner

Primary Examiner—Jill Gray

(74) Attorney, Agent, or Firm—Kenyon & Kenyon LLP

(57) **ABSTRACT**

To provide a novel high strength polyethylene multifilament which consists of a plurality of filaments having high strengths and uniform internal structures, and showing a narrow variation in the strengths of the monofilaments, and which has been difficult to be provided by the conventional gel spinning method.

A high strength polyethylene multifilament consisting of a plurality of filaments which are characterized in that the crystal size of monoclinic crystal is 9 nm or less; the stress Raman shift factor is $-5.0 \text{ cm}^{-1}/(\text{cN/dTex})$ or more; the average strength is 20 CN/dTex or higher; the knot strength retention of each monofilament is 40% or higher; CV indicating a variation in the strengths of the monofilaments is 25% or lower; the elongation at break is from 2.5% inclusive to 6.0% inclusive; the fineness of each filament is 10 dTex or less; and the melting point of the filaments is 145° C. or higher.

7 Claims, No Drawings



WORLD INTELLECTUAL PROPERTY ORGANIZATION

Home IP Services PATENTSCOPE® Patent Search

This page is being phased out of production, but will remain available during the transition to our new system.

Please try the new [PATENTSCOPE® International and National Collections search page](#) (English only).



Search result: 1 of 1

(WO/2005/056892) HIGH STRENGTH POLYETHYLENE FIBER

Biblio. Data Description Claims National Phase Notices Documents

Latest bibliographic data on file with the International Bureau



Pub. No.:	WO/2005/056892	International Application No.:	PCT/JP2004/018004
Publication Date:	23.06.2005	International Filing Date:	03.12.2004

IPC: D01F 6/04 (2006.01)

Applicants: TOYO BOSEKI KABUSHIKI KAISHA [JP/JP]; 2-8, DojimaHama 2-Chome, Kita-ku, Osaka-shi Osaka 5308230 (JP) (All Except US).
SAKAMOTO, Godo [JP/JP]; (JP) (US Only).
KITAGAWA, Tooru [JP/JP]; (JP) (US Only).
OHTA, Yasuo [JP/JP]; (JP) (US Only).
FUKUSHIMA, Yasunori [JP/JP]; (JP) (US Only).
MURASE, Hiroki [JP/JP]; (JP) (US Only).

Inventors: SAKAMOTO, Godo; (JP).
KITAGAWA, Tooru; (JP).
OHTA, Yasuo; (JP).
FUKUSHIMA, Yasunori; (JP).
MURASE, Hiroki; (JP).

Priority Data: 2003-414574 12.12.2003 JP
2004-003564 09.01.2004 JP
2004-092305 26.03.2004 JP
2004-201430 08.07.2004 JP

Title: (EN) HIGH STRENGTH POLYETHYLENE FIBER
(JA) 高強度ポリエチレン繊維

Abstract: (EN) [PROBLEMS] To provide a novel polyethylene fiber which exhibits high strength and has a uniform internal structure, wherein a variation in strength of filaments constituting a fiber is narrow, and which has been difficult to be provided by the use of a conventional method such as the gel spinning method. [MEANS FOR SOLVING PROBLEMS] A high strength polyethylene multifilament, characterized in that it exhibits a size of a monoclinic-derived crystal of 9 nm or less, a stress Raman shift factor of -5.0 cm⁻¹/(cN/dTex) or more, an average strength of 20 cN/dTex or more, a retention of the knot strength of a filament constituting it of 40% or more, a CV indicating the variation in the single yarn strengths of filaments of 25 % or less, an elongation at break of 2.5 to 6.0 %, a single yarn fineness of 10 dTex or less, a melting point of the fiber of 145°C or higher.
(JA) 【課題】従来のゲル紡糸法のような手法では得ることが困難であった高強度であり繊維の内部構造が均一かつ繊維を構成するフィラメント強度のバラツキの少ない新規なポリエチレン繊維を提供することを課題とした。【解決手段】モノクリニック由来の結晶サイズが9 nm以下、応力ラマンシフトファクターが-5.0 cm⁻¹/(cN/dTex)以上、平均強度が20 cN/dTex以上、マルチフィラメントを構成するフィラメントの結節強度の保持率が40%以上、フィラメントの単糸強度のばらつきを示すCVが25%以下、破断伸度が2.5%以上6.0%以下、単糸繊維が10 dTex以下、繊維の融点が145°C以上であることを特徴とする高強度ポリエチレンマルチフィラメント。

Designated States: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL,

PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

African Regional Intellectual Property Org. (ARIPO) (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW)

Eurasian Patent Organization (EAPO) (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM)

European Patent Office (EPO) (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR)

African Intellectual Property Organization (OAPI) (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Publication Language: Japanese (JA)

Filing Language: Japanese (JA)